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AN EVALUATION OF SEVEN YEARS EXPERIENCE WITH THE MAKOTAPI PROJECT IN SOUTH DAKOTA.

U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

MAKOTAPI 1971

BY
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REPORT OF EVALUATION

THE MAKOTAPI PROJECT IN SOUTH DAKOTA

May 1971

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I. SUMMARY OF FINDINGS AND RECOMMENDATIONS

A. Summary of Findings

1. Early criticism of the proposed project, as unmanageable and potentially unresponsive to capital investment, was unfounded. Resource values and production potential were great enough to justify intensive management.

2. The Project was highly successful in completing planned work in cadastral Survey, Land Occupancy Trespass, Timber Sales, Timber Stand Improvement, Timber Trespass, Forest Site Improvement, Reforestation, Bark Beetle Control, Range Fencing, Reservoir, Silt Trap and Debris Basin Construction, Contour Furrowing, Tree and Shrub Planting, Recreation Site Development, and Road Construction.

   The Project was moderately successful in doing planned work in Grazing Administration and Range Seeding.

   The Project met poorly, or not at all, work plans for Recreation Inventory, Water Spreading, Diversions, Detentions, Spring Development, and Brush Control.

3. Scattered lands can be successfully managed provided the manager is selective in his choice of lands to be managed, applying available manpower and funds according to productivity potential and private cooperation.

4. Less conflict developed and more coordination was achieved partly because the increased program contained funds for many activities. Drain on existing programs in other jurisdictional areas for supporting functions was thus avoided.

5. Maintenance of funding levels for a specific subactivity (in this case 1260) without regard for changing needs, causes comparatively lower priority problems to be treated and ultimate disillusionment with "special projects" as a program concept.

6. The detached office arrangement was successful. This was because: (1) the program increase was large enough to justify the added overhead cost, (2) the office was located in a town which serves as the local trade center for the area, and (3) distance from the District Office was great enough to show significant savings in time and travel cost.

7. Project objectives were not as clearly stated as they might have been had more time been available for planning. Nor were they stated in terms of realistic output or benefits. Project evaluation is thereby made more difficult.

8. Cost and man-months were not, in all cases, properly charged to the Project. It is impossible to construct a completely accurate cost record.

9. Some records, including accomplishment, were destroyed under the three-year file limit ruling.

10. Employees who were intimately familiar with the resources and were highly motivated made up for the lack of comprehensive plans and shortage of time for critical early decisions.

11. The Project managers adjusted to changes in program policy and procedure (AMP, WC&D, Planning System), new programs (Black Hills RC&D Project) and funding structure (Pest Control and Frail Lands).

12. Funding integrity (compared to original plans) has been high in both apparent total expenditure and subactivity distribution.

13. Makotapi has evolved from a two-county project into a Statewide Resource Management Area. Primary emphasis, however, still centers on the original project area.

14. Local public interest in the Project remains high. This is partly due to the impact of spending on the small, and relatively stable, local economy.

15. Based on evidence gathered at Makotapi, the "project" approach to program development, funding, and management can be highly satisfactory if it provides: (1) funding for supportive activities as well as primary ones, and (2) the means to adjust funds and manpower as program priorities change.

16. Future studies of "special projects" should be restricted to existing or potential problems and to additional matters which can provide a significant contribution to Bureau programs.

B. Recommendations for the Future of the Project

The established 5-year project term expired at the end of fiscal year 1968. While most of the original objectives have been met by then, it became apparent that there was need for and potential benefits to be realized from continuation of the Project at the same level of management intensity. Essentially, the Project has evolved into the South Dakota Resource Area, encompassing all the BLM lands in the State. In this context, we recommend:

1. That the detached Resource Area headquarters at Belle Fourche be continued indefinitely and that it have administrative jurisdiction over all BLM lands in South Dakota.

2. That those portions of northeastern Wyoming and southeastern Montana, which are most advantageously administered from Belle Fourche, be added to the South Dakota jurisdiction. The decision should particularly consider (1) the benefits to be gained by using Belle Fourche manpower on possibly higher priority work as South Dakota efforts shift to more marginal sites, and (2) the alternative cost of attaining the same management objectives from the Casper and Miles City offices. As a minimum, the northeastern Wyoming forestry program should be considered for such transfer.

3. That identity of this program as the "Makotapi Project" be discontinued and that it not be specifically identified as such in program and budget documents. That it be officially referred to as the "South Dakota Resource Area" as it is locally known and that Congress be reassured that it is now a permanent management arrangement. That the program continue indefinitely and all work done in the Resource Area be coded separately from the District program. This would permit expenditure and accomplishment to be recorded as needed.

4. That the 1260 portion of the program no longer be singled out in the Budget Justification. As presently shown, it represents neither the future priority needs of Miles City

District nor the level of total spending in South Dakota which in 1970 was more than double the amount shown for 1260.

5. That a plan be drawn and, if necessary, negotiations with the Appropriations Committees be undertaken to divert a portion of South Dakota 1260 funds into higher priority work in South Dakota. We suggest that the Montana State Office prepare this plan. Potential activities might be lands, recreation and wildlife habitat, management, or pre-commercial forest stand improvement. Continued 1260 budgeting at the current level as total real dollars decline and priorities change will result in over-development in one area, underdevelopment in another, and loss of confidence in the "special project" approach to programming, all of which are undesirable consequences.

6. That higher priority be given to completion of management framework planning which has not progressed as far as desirable. Although program management results demonstrate an appreciation for both complimentary and conflicting uses, completion of plans would permit a greater input into the Black Hills RC&D Project Resource area objectives and priorities can also be updated in the process.

7. That as planning proceeds, management and investment alternatives be found which will yield the greatest effect and benefits for the cost. That before any large watershed structure be undertaken, evaluation be made to compare expected benefits with those which might accrue if the same amount of funds were invested in another alternative.

8. That the South Dakota Area Manager be delegated collection authority for grazing leases, timber sales, material sales, and similar matters.

9. That DSC conduct professional position classifications in the Belle Fourche Office to determine whether apparent grade increases are justified. Existing grades do not, in some instances, appear to reflect the relative responsibilities required of a detached office staff.

10. That if a new lands position becomes available to the State, the Belle Fourche Office be given high priority consideration for this position.

II. NATURE OF EVALUATION AND ASSUMPTIONS

The Associate Director, on November 24, 1970, approved an evaluation, by the Division of Operations, of the Makotapi Project in South Dakota. Work started the week of November 30 by a team consisting of:

Richard Herstine	Division of Operations, WO
Donald Riddle	Division of Forestry, WO
Donald Waite	Research and Development Staff, WO
Gerald Hillier	Resource Program Management Staff, Montana SO

We believe this study comes within the scope of "Special Evaluations" as provided for in BLM Manual Section 1240. Since the evaluation was neither general nor functional in nature, the team has assumed that quality of administrative and program management and technology at all organizational levels was adequate. The team therefore limited its considerations to factors which were, for the most part, unique to the Project. The evaluation included interviews with BLM employees who are or were connected with the Project, research of records, and two field trips. A copy of a report on the data gathering phase of the study is attached. This phase was concluded on December 18.

The Project proposal received fairly severe but isolated criticism within BLM. Dissenters pointed out that BLM administers only five

percent of the land in the Project area and that the land should be disposed of rather than developed. They further claimed that the land did not warrant substantial capital improvement and that the Project was not economically sound. They went on to state that the Project should not receive such a large proportion of the funds and manpower available to the Bureau, when compared to other alternatives. It is a goal of this study team to provide enlightened reappraisal both of these claims, made nearly eight years ago, and of the more predominant positive attitudes.

The study team is aware that evaluations, by their nature, are subject to criticism on many fronts. This cannot be avoided. Also, there is some question of the usefulness of evaluating a program approach that has, to date, depended upon political motivation for its beginning. Despite these deterrents, we believe an evaluation is useful to determine the implications of this approach to resource management and development and to make recommendations for the future.

III. ORIGIN OF PROJECT

The Makotapi Project was initiated by the Senate Appropriations Committee during 1964 Fiscal Year budget considerations. The Committee recommended an increase of $110,000 over the House allowance for FY 1964, specifically earmarked for "Rehabilitation of public land in Butte and Lawrence Counties, S. Dakota". (Senate Report No. 181, 88th Congress, 1st Session, Page 3.) The Senate approved the Committee's recommendation and the item was sustained in conference. Approximately $10,000 of additional funds for the Project were to come from the existing base. Thus, appropriations for FY 1964 contained $120,000 to begin the Project.

The Project did not result from routine, systematic planning and programming effort. It did not appear in the 1964 Fiscal Year (nor any other) proposed program, budget estimate, or budget justification document. A formal plan for the Project was begun in late May 1963 after the appropriation had passed the Senate. It was published in September 1963. The plan provided for a 5-year multi-activity effort and served as principle guide for the Project in its early stages.

IV. GEOGRAPHIC LOCATION, FACILITIES, AND ADMINISTRATIVE ORGANIZATION

A. Geographic Boundary

The Project area identified by the Senate Appropriations Committee consisted of 150,928 acres. The Project plan published in September 1963 added BLM lands in Meade and Harding Counties. Eventually, responsibility of the Belle Fourche office was expanded to include all BLM lands administered in South Dakota. This action brought the total land managed from Belle Fourche to 278,000 acres.

There is a temptation to conclude that the need for two boundary changes in so short a time was due to poor judgment, inadequate planning, or both. But such a conclusion overlooks the changing demands on the Project office as BLM presence became known in South Dakota. During 1965 and 1966, office staff was involved in the "Black Hills Area Resource Study." This was followed by preparation of the "Black Hills Area Resource Conservation and Development Project Plan." It soon became more and more difficult for the staff to separate obligations, time, and travel between work within and outside the Project area. The last expansion, to include all of South Dakota, was largely to create the most efficient system for cost control, recordation, and management.

We discovered no evidence to indicate that anything was lost because a larger area was not proposed at the outset, nor that integrity is now lost because of that expansion.

During 1967, serious consideration was given to adding lands administered by the Casper District in Crook and Weston Counties, Wyoming, to the administrative responsibility of the Belle Fourche Office. This, however, was never accomplished. We believe that the proposal has considerable merit. Administrative travel distances are substantially shorter from Belle Fourche to BLM lands in Crook, Weston and northern Campbell Counties than from Casper to these points. For example:

		Approximate Mileage
Casper to Moorcroft (SW Crook County)	-	155
Belle Fourche to Moorcroft	-	75
Casper to New Castle (E Central Weston County)	-	170
Belle Fourche to New Castle (County Seat, Weston County)	-	76
Casper to Rocky Point (NE Campbell County)	-	200
Belle Fourche to Rocky Point	-	75
Casper to Sundance	-	188
Belle Fourche to Sundance (County Seat, Crook County)	-	44

Also, business and residential supplies for this area are drawn from the direction of Belle Fourche rather than from the direction of Casper. The current local BLM climate for

such an administrative exchange is not known, but is not expected to be as favorable as when first proposed. Proponent strength must be significantly greater than opposing strength in order to accomplish such a change. It should be noted that during FY 1969, the Casper District initiated "office hours" on a once-a-week basis in the Agricultural Stabilization and Conservation Service office in Sundance, Wyoming. This came about through pressure from sponsors of the Black Hills RC&D Project which includes three Wyoming Counties as well as six in South Dakota. To a lesser extent perhaps, the action resulted from the prior year's effort to change administrative jurisdiction based on the Casper District not serving the public's needs in this region.

Consideration was also given, a few years back, to transferring a portion of the adjoining land of the Powder River Resource Area of the Miles City District to the South Dakota Resource Area. This did not materialize.

B. Physical Facilities

Because the distance from Miles City District Office was expected to present operational difficulties for a program of the scale proposed, a separate office for local project management was established. The office opened on Fifth Avenue in Belle Fourche, South Dakota, on September 24, 1963, with a

staff of five. On July 1, 1968, the office moved to larger quarters on Round Up Street. These quarters were built to BLM specifications and leased by GSA. There is an attached warehouse which lends itself to conversion into additional office space should the need ever arise. A fenced vehicle lot adjoins the office.

Current office quarters are comfortable and adequate for both the present staff and any likely personnel expansion, even if the administrative jurisdiction were expanded to feasible limits. No cost analysis of alternatives was made with respect to location of a separate office in the Project area. However, more was clearly accomplished during the 5-year period than would have been possible operating from Miles City.

C. Administrative Organization

In addition to the Project Manager, the original staff included one forester, two range conservationists (one to work half time on lands), and a secretary. An additional forester was added to the permanent staff in February 1964 to supervise the bark beetle control program. By 1964, the staff had increased to include six permanent and nine temporary people. As the beetle epidemic and forest rehabilitation backlogs were reduced, fewer temporaries were retained. At the end of 1970, there was an Area Manager (Project Manager), one forester, two range

conservationists, a secretary, and three WAE employees.

During the 7½ years of the Project's existence, three Project Managers have directed the office. The first two were foresters by profession, the present one has served as a Missouri River Basin Project classifier and later, a realty specialist. There has been almost constant staff turnover. Between May and August 1968, the entire staff including the clerk changed. Some program slippage has undoubtedly resulted from these changes, but motivation of office personnel has retained the high level which characterized the original group. The staff has done an excellent job of maintaining Project continuity.

The Belle Fourche Office staff experience most of the problems and advantages of a detached subordinate office. Counter stresses are inherent. The office is 175 miles from district headquarters and in a different state. For this reason, the staff must take on most of the responsibilities required of a district office. In maintaining relations with state agencies and state-wide interest groups, it often takes on the aspect of a state office. It is, however, reportable to the district manager, and in order to maintain uniformity and control, it is susceptible to procedures similar to other district sub-units.

One such procedure is the billing and receiving of fees. Delay occurs because of added handling and confusion, and uncertainty develops if either BLM office is bypassed in the communication chain. With grazing leases, Belle Fourche drafts the billing documents and sends them to the District Office. The District Office then bills the lessee who may return his payment to either Belle Fource or Miles City. If received by Belle Fourche, they forward the check to Miles City. The District Office notes the accounts receivable, sends the check to Denver and the unsigned lease to Belle Fourche. The Area Manager signs the lease and the receipt for payment and mails them to the lessee. While some of the problems can be averted by prompt phone calls, communications are difficult and, understandably, the Area Manager would like to have authority to bill for and receive payments. The present arrangement is inefficient and confusing to the public. The lack of accounts receivable authority also includes timber and material sales and the "Golden Eagle" permit.

Another problem inherent to detached offices such as this, is added difficulty of control by the District Manager, of both time allocation and job accomplishment. There are program service (1290) costs which would not occur (or at least not to

so great a degree) if the group were literally under the District "roof". There are also grade problems in situations such as this. Program workload for a detached unit may be the same as, or even less than, similar units at the District Office. But responsibilities such as those of remote facility management and of Bureau representation in the community may substantially outweigh what might otherwise be a similar level of responsibility.

As indicated, these matters correlate with detached offices and not necessarily with "special projects". They are included mainly because of their influence on the success of this particular Project and are worthy of attention in any event. Only one State Office division expressed the opinion that the existence of Belle Fourche as a detached Project office caused sufficient communication problems to warrant its closure. Most staffs, and the Miles City District Manager, have apparently experienced no serious problem in this respect. It is the belief of the committee that, in the case of Makotapi, the advantages of the local office, including better service to the public, have outweighed the problems.

V. PROJECT OBJECTIVES

A certain amount of presumption is involved in attempting to identify intended Project objectives beyond the "Rehabilitation of public lands in Butte and Lawrence Counties, S. Dakota" as provided for by Congress. The following have been assimilated, however, from the Miles City District publication "Makotapi Project" published in September 1963. In that document, the following items appear variously as needs, requirements, objectives, or work for which funds will be spent, all of which we hereafter refer to as "objectives". For the most part, objectives were stated in terms of input. Where output objectives did appear, they were not stated in quantitative terms.

General objectives are stated in the plan as:

- accelerated development, use, and conservation of 237,513 acres of public domain located in the northwestern portion of South Dakota; and
- improvement of the local economy by providing additional job opportunities.

Specific objectives for each activity are shown below. It should be noted that at the time the Project was initiated, there was a Master Unit Analysis. There was no Unit Resource Analysis or Management Framework Planning process. There was no Allotment

Management Planning process, nor a Watershed Conservation and Development system. Recreation planning was part of the lands program and there was no formal wildlife planning process. The C&MU Act was not passed until the following year.

Planning

- Complete resource inventory and master unit analysis.

Lands

- Exchange land (State and private) to consolidate the land pattern.
- Adjust boundaries with the Forest Service.
- Review existing withdrawals to determine if original intents are still valid and make necessary adjustments.
- Resolve existing trespass cases (42 on record).
- Classify and sell land that should not remain in Federal ownership.
- Inventory recreation sites (20 on record).

Forest Management and Development

- Intensively manage the timber resources.
- Control bark beetle infestation to forestall an epidemic.
- Rehabilitate the cyclone area.
- Prepare a timber cutting plan to develop the timber potential.

(The above is estimated to involve 1,250 acres of stand improvement, 250 acres of site improvement, 5,000 acres of surveys, 500 acres of reforestation, 1,115 MBF of forest product sales, 3,900 acres of forest pest control, and ten timber trespass cases closed.)

Cadastral Survey - 400 miles.

Fire Protection

- Prepare and activate a fire plan.
- Establish an education program.
- Establish a fire weather station.
- Establish per diem guards for detection.
- Acquire adequate fire equipment.
- Maintain existing cooperative agreement except that overall acreage should be reduced to exemption area only.

Administration of Grazing Lands

- Recheck and resurvey 85,916 acres of public domain.
- Adjust Section 15 leases to carrying capacity.
- Conduct range studies and develop management plans.
- Construct five miles of protection fence around the City Creek drainage.
- Conduct cooperative research with South Dakota State College.

Resource Development and Conservation

- Establish a general watershed plan based on preliminary surveys and inventoried conservation needs.
- Construct two detentions, one diversion, 35 silt traps and debris basins. Contour furrow 1,000 acres, apply brush control to 200 acres, and seed 1,000 acres.
- Apply waterspreading to 200 acres.
- Construct 15 reservoirs and seven miles of division, cross and protection fence, and develop five springs.
- Establish cooperative research study areas.

Recreation Site Development

- Develop the "tremendous" recreation potential including the Ft. Meade site.

Roads and Trail Development

- Design and construct the City Creek Access Road (2 miles).

The objectives of the Project did not change essentially during the 5-year period although the means of accomplishment did. Range and watershed techniques changed largely because of the Allotment Management Plan program and adoption of rest-rotation grazing management principles. Much of the work proposed under grazing administration was channeled into AMP's rather than into range survey and stocking rate adjustments. Unit Resource Analysis and other parts of the

Bureau's planning system have replaced Master Unit Analysis.

The degree to which these objectives were met is discussed in Section VII. The need for new or redefined objectives is covered in Section I.

VI. PROGRAM MANPOWER AND FUNDING

Proposed funding for the 5-year program was, in a conversation with Senator Mundt's office, set at $690,000, with a first year appropriation of $120,000. BLM agreed to budget $10,000 of this from existing funds for roads and trails, and to be responsible for budgeting the Project in subsequent years. First year fund distribution by the Washington Office was as follows:

10212	Lands Classification	$ 2,000
10222	Minerals	4,000
10310	Grazing Administration	6,000
10421	Forest Management	15,000
10423	Forest Development	17,000
10500	Cadastral Survey	48,000
10600	S&M Conservation	18,000
30100	Roads and Trails	10,000
		$120,000

In the "Makotapi Project" publication, the proposed program appeared as shown in Table 1 (next page). This is $68,000 higher than in earlier discussions due to an increase of $77,000 for cadastral survey and a decrease of $9,000 for roads.

A significant change in program funding occurred during the first year of operation with a forest pest control appropriation of $71,000, of which $49,888 was available for Makotapi. This appropriation is transferred to BLM from the Forest Service and has been available as needed.

TABLE 1 - PROPOSED FIVE-YEAR PROJECT FUNDING

Appropriation and Activity	1964	1965	1966	1967	1968	Total
Management of Lands and Resources:						
Land Tenure Analysis and Recreation Planning (10221)	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 30,000
Administration of Grazing Lands (10310)	6,000	6,000	6,000	6,000	6,000	30,000
Forest Management (10421)	11,000	15,000	15,000	15,000	15,000	71,000
Forest Development (10423)	21,000	26,000	17,000	42,000	25,000	131,000
Cadastral Survey (105)	64,000	65,000	65,000	15,000	12,000	221,000
Soil and Moisture Conservation (106)	18,000	38,000	38,000	38,000	39,000	171,000
Total, Management of Lands and Resources	$126,000	$156,000	$147,000	$122,000	$103,000	$ 654,000
Construction:						
Recreation Facilities (203)	--	--	12,000	14,000	6,000	32,000
Public Land Development Roads and Trails (301)	10,000	12,000	50,000	--	--	72,000
Total Program	$136,000	$168,000	$209,000	$136,000	$109,000	$ 758,000

Data Summarized from Project Schedules in publication: "Makotapi Project," September 1963.

In 1966, $50,000 was appropriated for South Dakota as part of a program to protect and improve "frail" lands. This amount was added to the $18,000 previously identified for South Dakota in 1260, becoming the basis for the only dollar amount to be identified for Makotapi in budget justifications and program advice. An amount of $64,000 is still shown in these documents -- a procedure which this report will later recommend be altered.

Overall, the staff is presently constituted as efficiently as possible, considering the South Dakota workload, district program priorities, and funding commitments. There is nothing to indicate that this has not always been so. To some extent, staff members spread their time over several programs. Work in some activities is performed by district or state personnel or not at all. Comment by specific program follows. Expenditures referred to are from 1970 Fiscal Year obligation records which, according to our information, are substantially closer to reality than prior year records.

The District Office provides the South Dakota 1210 effort which in 1970 was 9.1 man-months. The work is nearly all public demand right-of-way, public sales, and RP&P casework. There appears to be sufficient work for one 1210 position at Belle Fourche. The Chief, Division of L&M in the State Office considers South Dakota an area of potential problems. Public demand casework has often taken land examiners as far away as Chamberlin, South Dakota, and even to the

Yankton area. These are 258 miles and 407 miles, respectively, from Belle Fourche, and 429 and 578 miles from Miles City.

In 1970, 24.1 man-months of 1220 were expended. This is about right for the professional staff, but sufficient funds and ceiling to provide a summer temporary appear to be justified. For example, routine AMP plot photos and records now take a large part of GS-9 staff time which could be better spent on plan development.

Belle Fourche has essentially all of the Miles City District forest land. This land should be managed and the one professional forester on board is the right professional staffing for the next five years or so when the first cutting cycle will be complete. This could be extended as much as twenty years if northeastern Wyoming were added to the Belle Fourche jurisdiction. Two WAE employees spend October to March on 9700 and March to October on 1240, 1250, and 2220.

Funds are adequate for 1260 work. For several years, $64,000 has appeared as a line item in the budget justification. The basis for this figure is identified at the beginning of this section. In FY 1970, $36,075 was obligated and 16.9 man-months were used. The balance was apparently directed to what are considered to be higher priority areas in Montana. Cooperative allotments in South Dakota have received a noticably higher intensity of

development than in Montana generally. In the early years, this was not a problem. However, as Makotapi funds go increasingly into lower-priority work, Montana districts and the State Office have become more dissatisfied with the Special Project arrangement and the apparent inflexibility of 1260 funds. While $64,000 may be too much, the amount spent in 1970 does not seem out of line, especially if sufficient funds and manpower are available for AMP work.

Normally, about one man-month per year is used in 1270. In view of the fire situation, this would appear to be adequate, although extra manpower is needed from time to time for such work as the Normal Year Fire Plan. The 1963 plan states that 216 fires occurred in the three years prior to the Project. While no BLM records were found, this figure apparently includes all ownerships and, as such, is misleading. During the seven years 1964 - 1970, fourteen fires were reported by BLM. Of nine reported fires 1967 - 1969, three were under "Exemption Area" (BLM lands exempted from reservation of the Black Hills National Forest) contract with the Forest Service, four were controlled by the local fire department at Ft. Meade, and two were on the prairie north of Belle Fourche. In number of fires per acre of BLM land, South Dakota, from 1964 to 1970, ranked mid-point of BLM States. It ranked lowest, however, with respect to acres burned and dollar damage per acre of BLM land. Disaster can occur, however, as evidenced by the Deadwood Fire of 1959.

Since the Project began, BLM has relied mostly upon the 5,100-acre Forest Service contract, rural fire departments, and ranchers for suppression. In addition to the sources mentioned, military personnel, Indian firefighters, and substantial equipment is available locally. BLM provides assistance to the Forest Service in the "Exemption Area" upon request and to ranchers, when aware of BLM land involvement. They also provide mop-up at Ft. Meade. (Sturgis Fire Department takes suppresive action.) The Belle Fourche office is occasionally asked to respond to fires in southeast Montana, when they are closer than the crew at Miles City.

A total of 3.8 man-months of recreation and wildlife habitat management were used in 1969 on URA's, AMP's, and wildlife exclosures and plantings. The allocation was down, in 1970, to 2.1 man-months. The office could use one or two additional man-months for recreation planning and one or two man-months for wildlife habitat management planning and for operational problems. Such increases, however, are not likely until the State's very small allocation for these activities is increased. The State received, for FY 1971, only ten man-months for recreation in all six districts. Wildlife problems, for the near future, must compete for the services of the district biologist at Miles City.

Development of the Ft. Meade area was one of the original Project objectives and planned work has been essentially completed. There is indecision, however, on whether this or some other level

of development and use is the proper one. More advanced planning would aid in this decision. Overflow pressure from the Black Hills recreation area to the south will inevitably answer the question if we do not.

South Dakota spent 2.4 man-months of recreation maintenance in FY 1970, two-thirds on operations, and one-third on maintenance. Allocations in this subactivity are not sufficient. Two culverts in the Ft. Meade recreation area which were washed out more than a year ago are scheduled for repair this spring, together with needed work on the toilet. The shortage of 2220 funds is here dramatized when considering that this is the only BLM developed recreation site in South Dakota and is located in an area with the highest potential use in all of North and South Dakota and Montana.

In 1970, 19 man-months were charged to program services. This is 15.6 percent of the total office budget and is somewhat higher than average for district offices. About 90 percent of the Manager's time, three to four months of one WAE's time, and the same amount of the clerk's time is charged to 1290. Program services in a small office tend to be a larger percentage of the total budget than is true of a larger office.

Belle Fourche spent 1½ man-months and $6422 for 8100 Range Improvement work in 1970. In 1969, the record shows ½ man-month and $354. Section 15 grazing receipts in South Dakota in 1968 were $28,900; in 1969 and they were $30,561; and in 1970, $32,243. The law requires that 25% of the receipts be spent for construction, purchase, or maintenance of range improvements. It does not require that the money be spent in the State or county wherein the leased lands are located. The Montana State Office receives a total allocation for 8100 with no breakdown among the three States under their jurisdiction. They, in turn, make a lump-sum allocation to the Miles City District which apportions funds among the resource areas. Total 1260 allocation to the District has been declining while that for the project has remained constant. Consequently, the District Manager has apparently been shifting RI spending toward the Montana portion of the District to lessen the impact of 1260 decreases there.

In addition to the 1210 effort, the District Office provides engineering design, construction supervision, and road and structure maintenance. The only engineering work done completely by Belle Fourche is spring development. Construction supervision was once done by the Belle Fourche staff which is currently attempting to qualify someone, via BLM training, to again do the work. It was our observation that the decision to hold most engineering work and supervision at the District level is justified until sufficient expertise can be developed at Belle Fourche.

Cadastral survey work, which is an important part of original Project objectives, was, and is, done by State Office people. Since completion of surveys in the "Exemption Area", little cadastral surveying has been done. Remaining work is being done in accordance with State-wide priorities.

Because of reportedly inaccurate time coding (and expenditure printouts) in the past, it was difficult to determine whether expenditures are in line with work needs. Overall, they appear to be, especially if we give most weight to the most recent report. Obligations for FY 1970 are shown as 12 percent higher than in 1969. Man-months are 18 percent higher in 1970. Subactivities which show the greatest change in man-months in 1970 include 1210 (up 168 percent), 1250 (up 720 percent), 1270 (down 67 percent), 2220 (down 40 percent), and 8100 (up 200 percent). The 1969 and 1970 man-months data follows:

	1969 Fiscal Year	1970 Fiscal Year
1210	3.4	9.1
1220	15.2	24.1
1240	17.7	15.8
1250	1.4	11.5
1260	20.7	16.9
1270	4.6	1.5
1280	3.8	2.1
1290	16.5	18.9
12 Total	83.3	99.9
2220	4.0	2.4
8100	0.5	1.5
9700	14.4	17.1
South Dakota Total	102.2	120.9

How well the program effort resulted in meeting the original Project objectives is discussed in the following section.

VII. PROJECT EFFECTIVENESS IN MEETING OBJECTIVES

General

The general objective of the Project was to accelerate development, use and conservation of certain lands in South Dakota or, as Congress put it, "Rehabilitation of public land in Butte and Lawrence Counties, S. Dakota." We believe that this general objective has been reached to the degree which funding and manpower constraints have allowed. Intensive management is being applied to about 42,000 acres including the Crago allotment, the Fort Meade area, and all the timber resources in the Project. While the Project area has much more potential for development, not all BLM lands can be effectively brought under intensive management.

The decision to establish a separate office in Belle Fourche contributed significantly to the accomplishment record of the Project by the end of the original 5-year period. This was especially significant for the forestry program which could not have been done efficiently from Miles City on a daily basis. Nor would a separate office in Belle Fourche likely have been justified for forestry alone. This subject is discussed in more detail under Sections IV B and C.

Location of the office in Belle Fourche has had a direct impact on the local economy. Including salary and contracts, approximately $939,000 was spent locally during the life of the Project. Assuming a local income multiplier of 1.5, total impact on the economy amounted to $1,408,500.The Project has provided direct job opportunities for local people. Indirect job opportunities have also been provided through construction activities such as fencing, recreation site construction, and reservoir construction.

Specific Objectives

The Makotapi Project plan outlined specific objectives in terms of units of "work" to be accomplished, "needs" to be met, and benefits to be produced. In most cases, the Project met or exceeded the original units of work that were proposed. Table 2 shows work accomplished through the end of the 5-year period (FY 1968) and also through FY 1970. Determining how well the Project met proposed needs and produced proposed benefits is more difficult.

Where needs were expressed in quantitative terms, we can measure the extent to which they were met. However, where they were expressed in such general terms as "land exchange to consolidate the land pattern" or "intensive management of timber resource", it is difficult to determine, in any quantitative way, the extent of success. In such cases, a value judgment was made.

Table 2

PROJECT ACCOMPLISHMENTS COMPARED WITH 1963 PLAN 1/

New Code	Old Code	Activity	Total Original Plan	FY 1964 Accompl.	FY 1965 Accompl.	FY 1966 Accompl.	FY 1967 Accompl.	FY 1968 Accompl.	Sub Total	Variation From Plan	FY 1969	FY 1970	Total
1210	102	Trespass (occupancy)	42 cases	2	1	28	5	4	40	-2			40
		Recreation site inventory	20 sites			1	2		3	-17			3
1220	103.1	Grazing lease administration	50 cases	NI 3/	85	NI	NI	NI	85	+25	NI	NI	85
		Allotment Management Plans	2/			1			1		1	1	3
1240	104.21	Forest product sales	1,115 MBF	200	431	1,444	1,759	1,355	5,189	+4,074	1,180	1,096	7,465
		Trespass (timber)	10 cases	1	2				3	- 7 4/			3
1250	104.23	Site improvement	250 acres	140	10				150	-100			150
		Reforestation	500 acres	88	33	57	150	100	428	- 72		100	528
		Stand improvement	1,250 acres	50	108	360	440	340	1,298	+ 48	295	274	1,867
1260	106	Fencing	7 miles	3.4			10.8	5.6	19.8	+12.8	14.1	5.8	39.7
		Brush control	200 acres						0	-200			0
		Seeding (interseeding)	1,000 acres				446	94	540	-460			540
		Other soil stab. projects:											
		Contour furrow)				248	669	32	949				949
		Tree & shrub plant)	1,000 acres			4	23		27	- 24			27
		Waterspreading	200 acres						0	-200			0
		Reservoirs	15 each			5	8	17	30	+ 15	10	12	52
		Diversions	1 each						0	- 1			0
		Detention	2 each						0	- 2			0
		Spring development	5 each				1		1	- 4			1
		Other water control practices											
		Silt traps)											
		Debris basins)	35 each	2	2			53	57	+ 22			57
		Study plots	2/				5	2	7			1	8
		Other water dev. - catchments	2/				1		1				1
1400	105	Cadastral Survey	400 miles			35	86	45	166	-234	151		317
2120	201	Recreation site construction	1 site				1		1	0			1
3100	301	PLD Roads	2 miles		4.4				4.4	+ 2.4			4.4
8100	801	Reservoirs	2/			1			1		3	5	9
9700	9420	Forest Pest Control	3,900 acres	4,100	5,200	5,200	5,200	5,200	5,200	+1,300	5,200	5,200	5,200

1/ Source: Job Documentation Reports, Special Project Reports, Public Land Statistics, Monthly Management Reports, and special narrative progress reports.

2/ Not in original Makotapi Project plan.

3/ No information available.

4/ Survey proved 7 suspected cases to be unfounded.

Many of the projected benefits were also very general. Included were such goals as "stabilization of the livestock industry through intensive management practices", "improvement of the local economy", and "propagation of existing and prospective industries". We cannot measure the extent to which these objectives were met because there is no documentation of the situation before the Project was initiated. Even if the "before" situation had been documented, it would be almost impossible to measure the impact of such a small project on such large regional objectives.

Where proposed benefits were quantified, there is also an evaluation problem. Recreation benefit estimates, for example, appear to have been wholly unrelated to what could have been realistically produced with the proposed amount of funds. Productive potential of the land was apparently not considered, nor was the number of facilities that would be constructed. For example, it was estimated that visits to BLM lands would increase to 41,000 annually by 1967 with recreation development. Also, it was estimated that as a result of this development, expenditures by tourist and recreationist would exceed $2,000,000 annually by the end of the 5-year Project period. These outputs and benefits were to be produced by investing only $32,000 in one recreation site development over the last three years of the Project.

There seems to be little value in trying to measure the effectiveness of the Project in producing benefits envisioned in the original plan. Instead, an attempt will be made to evaluate benefits that were produced with funds and manpower that were invested.

Range and Watershed Programs

The original plan for range management was directed at conducting grazing resource inventories and administering Section 15 leases. The watershed program (RC&D at that time) provided for a complete array of soil stabilization practices and water control projects. Allotment Management Plans and the Watershed Conservation and Development System were not in existence at the time the Project was planned. Section 15 lease administration turned out to be a considerably greater workload than originally anticipated. Expansion of the Project to include all of South Dakota increased responsibility by 85 leases, to 365. Before the Project, lease supervision was almost nonexistent and many tracts of land were not even leased. With additional manpower closer to the land, lease management has been much more effective and more tracts of land are now under lease. About 16,000 acres still remain unleased, however. During the 5-year period of the Project, total receipts from grazing totaled $139,252.

Lessees have also benefited. They can now discuss their leases in Belle Fourche rather than incur the added cost and time of going an added 175 miles to the District Office. Conflicts have been more quickly resolved and control has been more effective on more tracts of land.

Although substantial lease administration and supervision was completed, the Project did not meet the needs originally outlined. Little lease supervision is made outside of areas under, or proposed for, AMP's. Original goals were not met because the emphasis of the range program changed half way through the Project. More emphasis was placed on planning grazing systems and, since manpower was limited, less work was done in lease administration. Judging from the success of one of the allotment management plans, this appears to have been a wise allocation of limited manpower.

Two detention structures, one diversion, 200 acres of water spreading, and 200 acres of brush control were originally proposed, but never undertaken. To compensate for this, 19.8 miles of fence were completed compared with an original plan for 7 miles and 15 more reservoirs were constructed than planned. This shift was made to implement allotment management plans. The allotments had moderate erosion and the plans were designed to accomplish watershed management objectives. The plan in effect the longest (Crago Bros.) appears to be meeting these objectives.

Sites for the proposed detention structures were on Alkali Creek in the Moreau Grazing Association Allotment where active headcuts advancing up the drainages were a concern to many. Later evaluation by State and District staff found no off-site damage, relatively slow movement, and extensive channel filling a short distance downstream.

Also, the grazing system now in effect contributes to natural healing processes by increasing vegetation in the channel. The staff concluded that structures could not be justified on either technical or economic grounds. The local staff has several studies in the area charting progress of healing. If the situation changes or reverses, appropriate measures can be programmed.

It is not practical to document all benefits from range and watershed accomplishments. We cannot, for example, meaningfully identify the benefit from one water catchment. The problem is not a serious one in Makotapi, however, for the Range and Watershed projects are largely those resulting from investments in the Crago Brothers Allotment Mangement Plan. Most of the 30 reservoirs and 19.8 miles of fence listed as accomplishments for the Project were constructed to implement this AMP. Also, one-third of the 949 acres of contour furrowing and all the range shrub and tree planting took place on this allotment.

The Crago Brothers AMP covers 10,466 acres of BLM land, 1600 acres of State land, and 10,384 acres of private land. Approximately $45,000 of Federal funds and $15,000 of private funds were invested to implement this rest-rotation grazing system and do additional watershed work.

Tangible dollar benefits include increased public and private AUM's for livestock. Before the first investments were made in 1966, the allotment provided 4646 AUM's annually. In four years, use of AUM's increased to 6900 or a net increase of 2254 AUM's annually. During the next seven years, AUM's are expected to increase to a total of 7200 or a net increase of 2554 AUM's annually. A conservative estimate of the fair market value of an AUM in this area is about $3.00. This is based partly on the fact that the average competitive bid for comparable forage on Fort Meade in 1969 was $4.21 per AUM. Applying the estimated value of $3.00 per AUM to the net increase in AUM's, we compute a net increase in dollar benefits of $7662 annually. This is nearly twice that which would be necessary to amortize the initial capital investment of $60,000 over a 25-year period. An annual payment of $4300 would be required to amortize this investment over 25 years at 5-1/8 percent interest.

A complete analysis would require consideration of costs for planning and designing of the grazing system and contract supervision. Also, there are annual costs of allotment studies and maintenance of the investments. To balance off these additional costs, there are many intangible benefits such as reduced soil erosion and improved water quality. Before the AMP was installed, the 22,450 acres were estimated to have an average soil surface factor (SSF) of about 48, which means

it was, on average 65 percent stable. It is estimated now that the area has an average SSF of 28 (about 90 percent stable). In effect, the AMP has completely stabilized the equivalent of 5600 acres.

Antelope hunting in this area is a particularly valuable resource. Many hunters, particularly those from outside the area, pay $25 per season to hunt antelope on private land. Rest rotation has improved both habitat and forage available to both deer and antelope. It is difficult to estimate how many more animals will be produced by this and even more difficult to estimate what the increase in hunter and visitor days will be. Big game numbers might increase slightly, but improving only the one allotment will probably have little effect on total numbers in the area. Not until rest rotation has been applied to the entire Center of the Nation Planning Unit will the area be likely to show a significant increase in big game animals. More forage and better habitat will improve the health and vigor of game animals. This will help avoid loss of hunting and recreational use. Also, it will provide a higher quality experience.

Reservoirs and emergent vegetation along the shorelines of the Crago allotment have improved, and will continue to improve water-fowl habitat. There were thirty reservoirs on the allotment before the AMP was installed and there are now fifty. Based on findings of the Milk River Research Project in the Malta District, it is estimated that before the AMP, each reservoir produced one brood

of ducks with six ducklings per brood. Now, it is estimated that each reservoir produces two additional broods. If each additional duckling provides an additional duck hunter day, either on or off the allotment, this would add 720 additional hunter days (18 ducklings x 50 reservoirs = 900 ducklings; 6 ducklings x 30 reservoirs = 180 ducklings). Using the low range of monetary values prescribed for specialized recreation in Supplement 1 of Senate Document 97, there is a net monetary benefit for water-fowl of $1440 annually (720 x $2).

From the foregoing discussion of the Crago AMP, it is evident that for at least this part of the range and watershed program, public benefits were greater than the cost. Also, it could probably be concluded that the redirection of funds into investments to implement the AMP was a wise decision. While it would be necessary to conduct a complete analysis to determine what the benefits would have been, had the same funds been invested in, say one or two large detention structures, it is very doubtful that, in this area, the benefits would have been anywhere near as great. The AMP also demonstrates the value of a coordinated approach between planning a grazing system and investing the watershed funds. Had a great deal of land treatment and structure work been undertaken in the allotment without the benefit of the grazing system, it would not likely have been as effective in the long run. A grazing system would probably have been

installed later anyway, adding further to the cost. As it is, the grazing system alone may be effective enough to reduce runoff and erosion to an acceptable level and still produce the desired wildlife and livestock forage benefits.

Judging from the success of the rest-rotation system, it could be that contour furrowing and tree planting may not have been necessary. If it could have been foreseen that Crago AMP benefits might be achieved without these added treatments, their cost could have been invested toward implementing an additional AMP. Faster progress could thus have been made toward resource conservation and development objectives in South Dakota. Also, there appears to be an opportunity to determine whether the same benefits could have been produced with fewer reservoirs.

Cadastral Survey and Lands Programs

By the end of FY 1965, ninety percent of the needed cadastral survey ground work was complete. In this respect, Table 2 data reveals reportable dates of survey completion rather than the year in which field work was done. The job required fewer miles, but more work per mile, than was originally anticipated. Considering the complexity of the survey problem, the work progressed in a very satisfactory and timely manner. New mining claim and survey corners were placed on all tracts of land in the exemption area of ten acres or larger. In addition, a number of

townships were retraced and resurveyed in the rangeland area of the Project, thus facilitating more intensive management and development of that resource.

The primary objectives of the Survey and Lands programs were to jointly solve the mining claim occupancy trespass problem in the Deadwood "Exemption Area". Originally, it was estimated that there were forty-two occupancy trespass cases needing attention. During the life of the Project, the problem was essentially resolved by issuing thirty-nine patents. Thirty patents were issued under the Mining Claims Occupancy Act and nine under the Small Tract Act. Also, one case was resolved under the Recreation and Public Purposes Act.

In addition to occupancy trespass, other types of cases were processed as part of the lands program in Makotapi. Included were numerous public sale, exchange, recreation and public purposes, and right-of-way cases. Also, several agricultural trespass cases were settled and some withdrawal review and adjustment work was accomplished. Most of the timbered areas were cleared under P.L. 167. No lands were classified under the Classification and Multiple Use Act. A great deal of lands work of a highly sensitive nature was completed and it appears to have been accomplished in an effective and discrete fashion.

Benefits from clearing up this problem are impossible to estimate in dollar terms. This was a long standing situation and much of the trespass was innocent. Some of the tracts were sold for fair market value. Receipts from these sales are part of $45,161 in land sales that accrued during the 5-year project life. Establishment of corners aided the forestry program by providing timber sale boundary control. Perhaps the major benefit of the program was the peace of mind given to those who gained clear title to land occupied by their homes and businesses. It also benefited other landowners in the area by identifying their boundaries and relieving any anxiety they may have had over the possibility of trespass. The Bureau can now do a better job of administering public lands.

Even though program accomplishments were extensive, they fell short of that proposed in 1963. This was because planned accomplishments were many times greater than could be expected with the man-months made available.

Forestry Program

Forest management in the Project area was nonexistent before the Project was initiated. The original plan provided for a complete program of forest product sales, site improvement, reforestation, stand improvement, and forest pest control.

A timber harvest of 1115 MBF was proposed. This was greatly exceeded as 5189 MBF were cut and sold during the 5-year period. Since the harvest was all from commercial thinning and bettle killed salvage,

a stand improvement of 1298 acres was accomplished at the same time, exceeding the original objective of 1250 acres.

Because the commercial thinning and sale program accomplished a number of objectives at the same time, it was especially effective. Timber made available to the economy brought a revenue of $24,322 for the 5-year period. Thinned areas are now in a healthier condition and are thus more resistant to bark beetle attack. A good response to release will increase future merchantable volume or make it available for sale earlier. This has all been accomplished by preserving, and in some areas, enhancing, the scenic and recreation value of the forested areas. Little if any soil disturbance was observed and in recreational areas the forest was left with a clean, almost park-like appearance.

A comparison of the dollar and output benefits of this program compared to cost has not been made due to a lack of adequate growth data on the thinned areas. We can, however, measure some of the benefits and show partial relationship of these to the cost.

The cost to BLM of offering Project thinnings for sale has been $6.36 per MBF or $27.41 per acre. The average returns have been $4.75 per MBF or $20.43 per acre. Thus dollar benefits from (1) increased growth, (2) harvesting the timber sooner (time value of money), and (3) avoiding the loss of timber from disease and bark beetle attack must equal about $7.00 per acre for the project to break-even in strictly monetary terms. There are intangible benefits too. Increased growth of understory vegetation has improved the habitat and forage for wildlife. Also, in many areas, commerical thinning has enhanced the recreational and

scenic values of the forested lands. A complete analysis, considering all these factors, should show benefits which are at least equal to the cost. The program could have been more profitable in dollar terms had it not been for protecting the scenic and recreational values through continuous canopy management. If the stand had been clear-cut, higher stumpage values would have been received - perhaps as much as $2 more per MBF. Also, the cost of putting the timber up for sale could have been as much as 50 percent lower or about $3.15 per MBF. This means that in order to protect the scenic and aesthetic values, as much at $5.15 per MBF or about $22.50 per acre was foregone. Stated in another way, this is what it cost to protect these values. We believe the choice of management alternatives was well made because the timber stands are in a highly significant recreation and tourist area and a large number of local residents observe them daily. We appear to have a forest management showplace which is every bit as outstanding as the Crago AMP, especially with respect to environmental issues.

The more favorable ground has been logged. The remaining work is on steeper, more difficult slopes. As new areas are selected for sale, careful attention should be paid to potential benefits in comparison to damage that could be done to the scenic and recreational values. Perhaps in some areas when sale preparation and logging costs are higher, net benefits may not be sufficient to risk the possibility that excessive damage might be done to the environment. Such areas might better be set aside until more

favorable market conditions exist or better technology is developed or both.

The 428 acres of reforestation during the first five years fell somewhat short of the original goal of 500 acres. The 5-year goal was exceeded, however, in FY 1970. During 1968, 62,000 ponderosa pine seedlings were planted on the last plantable area of the old Deadwood burn. The evaluation team visited this area and observed that surviving seedlings are doing well. Approximately forty-five acres will remain brushland on site class four lands.

The forest pest control program which was added to the original program has been accomplished satisfactorily. After two years of intensive control work, the program has stabilized at a maintenance level. The program has been effective and a low treatment cost per acre has been maintained through selecting the least cost alternatives. A more effective and permanent solution to the problem, though, appears to be in commercial thinning of all forest land in the area (private included) to improve vigor. This has proven to be a key factor in warding off beetle attack.

The original program called for settlement of ten timber trespass cases. Three were settled and the others proved unfounded after cadastral survey work was completed.

Recreation and Roads

When the Project was originally planned, recreation inventory and planning was part of the lands program. During the 5-year Project period, only three of the potential twenty recreation sites were inventoried. These were in the Center-of-the-Nation, Fort Meade, and the exemption areas. Since only six man-months were planned to do all lands work, it is understandable why other sites were never inventoried. The picnic site planned for Fort Meade was constructed. It is very attractive and receives moderate use. Attempts at counting vehicular use have been hampered by theft of counters.

The original plan to construct two miles of access road in City Creek was changed to four miles in the Fort Meade area. The change was made after reconsideration of needs. A little more than the original commitment was met by constructing 4.4 miles of road in the Fort Meade area. The road is serving a useful purpose by providing multiple use access for forest and range management, fire control, and recreation.

Fire Protection

The objective of a fire protection program should be the reduction of fire damage. Makotapi objectives in this activity were not set forth in such terms and an evaluation of program effectiveness cannot be made.

Since neither funds nor manpower were programmed for 1270 during the 5-year Project period, no accomplishment can be expected. A small amount of funds have been available in recent years and the office has completed their fire planning and acquired a small cache of fire tools, including a 125-gallon pumper. Fire training has been intensified and suppression agreements in the "Exemption Area" and at Fort Meade remain in effect.

Overall Planning

The Makotapi Project Master Unit Analysis, proposed in the original plan, was not completed. It was replaced by the Unit Resource Analysis (URA) and other parts of the Bureau's planning system. URA's have been completed in draft form, except for Minerals which the State Office is expected to provide. These cover the Fort Meade and Exemption Area Planning Units. No Management Framework Plans were completed, nor have any been started. Also, the economic profile has not been completed for South Dakota. In view of the Project success, it is interesting to speculate on how much more successful it would have been had the Planning System been used. This is a question that can be pondered but not answered.

Early Criticism

When Makotapi was first proposed, it received isolated though rather severe criticism. It was argued that BLM administered only five percent of the land and that the lands should be disposed of. It was further stated that intensive development and management was not justified and that proposed investments were economically unsound. These claims have been proven basically false. BLM does administer only five percent of the land in the total Project; but there are areas which can be, and indeed have been, effectively developed and managed. The Crago Brothers AMP demonstrated that with the cooperation of a private landowner, intensive management could be economically applied in areas where the Bureau owned about half of the land. Not only were the Bureau's lands brought under effective management, but the surrounding areas were also benefited at the same time.

VIII. COST

It was not possible to identify Project costs accurately for several reasons. First, the management and financial reporting system was in its infancy in the Project's early years. Cost information was not always formally recorded and it seldom separated Makotapi expenditures from those of the total Miles City District.

Second, cost coding, the manner in which costs were reported, and subactivity definitions have all changed at least once since 1963. While such data as DSC has for the early years can be obtained, it requires conversion to a common code structure -- a substantial effort.

Third, coding integrity has not been consistently maintained. The office staff at Belle Fourche coded most obligating documents to the Project symbol G, but until FY 1968, few persons in the District Office did so when working in the Project area. FY 1970 is the first year that can be considered as reasonably accurate. Also, until FY 1971, no 1700 time from the State Office was charged to the Project. Several State staff members have been deeply involved, from time to time, in planning assistance and interagency relations in the Project area.

Fourth, cadastral survey work was programmed and supervised entirely from the State Office, as part of the total State program.

No cost coding to work done in the Project area was ever done. Neither the Project office nor the Miles City District ever included the 1400 activity on their Project approach schedules.

Fifth, except for the first year (FY 1964), no allocation or advice has been given by either the Washington Office to the State Director, nor from the State Office to the District Manager for any subactivity except 1260. Thus, all other activity allocations to Makotapi are "buried" in the Miles City District allocation. For some activities, we know that all expenditures for most years were in South Dakota. But even in Forestry, the District did forest inventory work elsewhere in FY 1965 and had post and pole sales in the "Breaks" area of Montana in other years. Since FY 1968, project approach schedules have been prepared only for 1260.

Despite these problems, we believe that the costs which have been extracted from Project reports, schedules and other sources provide a useful indication of expenditure level in South Dakota since the Project began. These costs are shown on Table 3, and if anything, they are conservative.

For the five years that was to have been the Project's duration, total expenditures have exceeded September 1963 estimates by about twelve percent. Most of the overrun can be accounted for by two

Table 3

Estimated Project Expenditures Compared With 1963 Plan

1964 - 1970 Fiscal Years
(1000's of dollars)

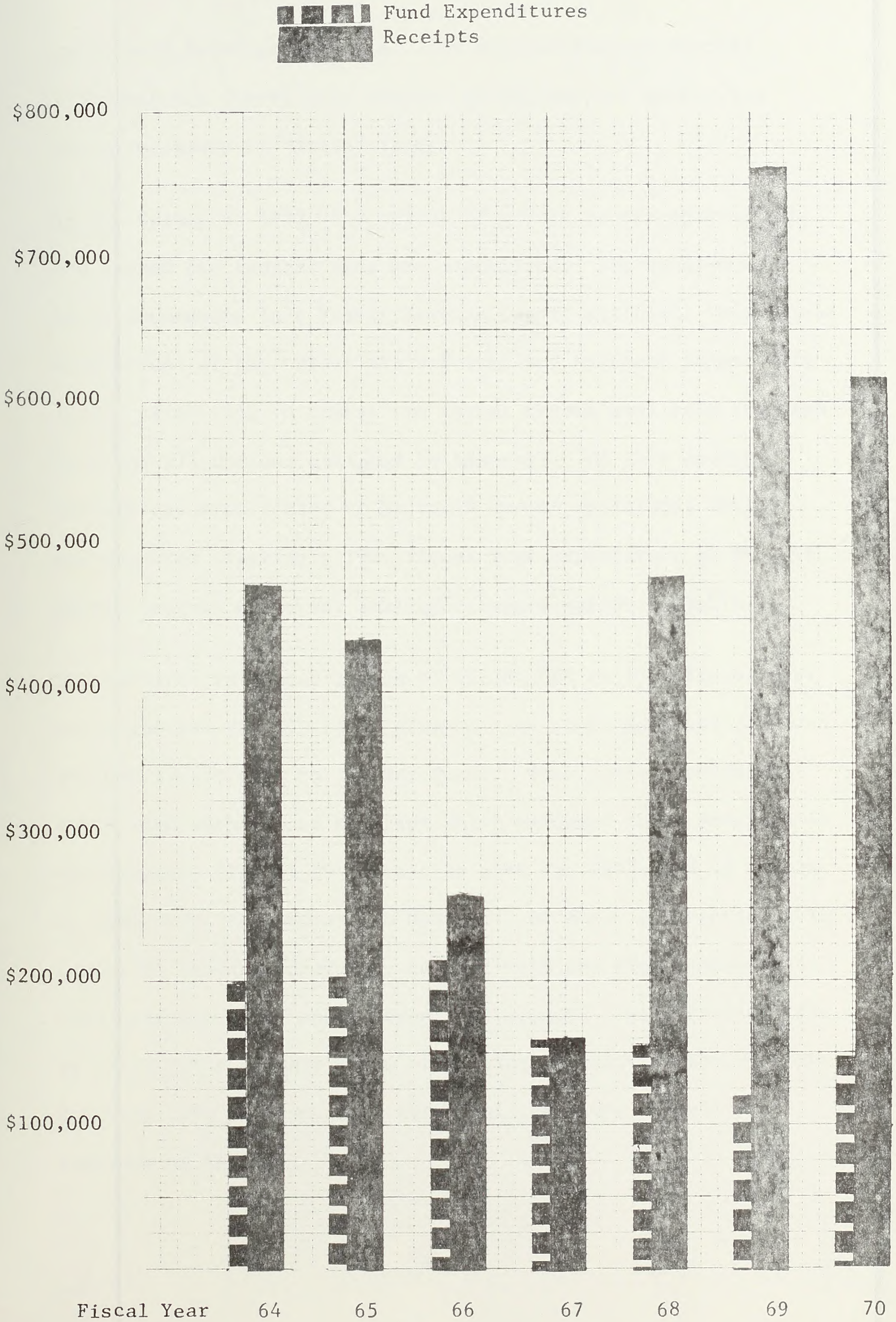
Subactivity												
New Symbol	Old Symbol	FY 1964	FY 1965	FY 1966	FY 1967	FY 1968	5-Year Total		Variation From Plan	FY 1969	FY 1970	7-Year Total
							Actual	Plan				
1210	102	6	12	8	1	1	28	30	- 2	4	9	41
1220	103.1	5	8	13	9	10	45	30	+ 15	14	22	81
1240	104.21	11	13	12	11	12	59	71	- 12	14	13	86
1250	104.23	21	14	9	10	10	64	131	- 67	1	10	75
1260	106	18	18	68	34	59	197	171	+ 26	43	36	276
1270	103.2						0	0		3	2	5
1280							0	0		4	2	6
(Rec.-W/L) 1290						12	12	0	+ 12	18	23	53
Total 1200		61	65	110	65	104	405	433	- 28	101	117	623
1400	105	90	90	90	5	6	281	221	+ 60	6	7	294
Total MLR		151	155	200	70	110	686	654	+ 32	107	124	917
2120	201				10	23	33	32	+ 1			33
2220						3	3	0	+ 3	3	2	8
2230	107					6	6	0	+ 6			6
3100	301				68		68	72	- 4			68
8100	801			1		2	4	0	+ 4		7	11
9700	9420	50	49	17	11	11	138	0	+ 139	9	13	160
Total		201	204	218	159	155	939	758	+ 181	119	146	1204

Source: Data for 1964 Fiscal Year from 1964 column of the 1966 Fiscal Year Project Schedule.
Data for 1965 - 1967 Fiscal Year from Prior Years columns of 1967-1969 Fiscal Year Project Schedules and Job Report
Data for 1968 Fiscal Year from 1968 column of 1969 Fiscal Year Project Schedule.

Data for 1969-1970 Fiscal Year from Special Interest Project Report printouts DSC and JDR records.
Data for 1400 estimated by Montana State Office, Division of Engineering.

Illustration 1

SOUTH DAKOTA FUND EXPENDITURES & TOTAL RECEIPTS



unexpected developments, i.e., the availability of special financing for forest pest control (9700) and for protection and development of "frail" lands.

In the Spring of 1963, the threat of a bark beetle epidemic in and around the Project area was identified. The problem was later documented in a Forest Service report entitled, "Biological Evaluation /of the/ Black Hills Forest and Adjacent Lands, July 1963". Financing to combat the threat became available the same year and $71,000 was assigned to Makotapi. Of that amount, $20,000 was transferred to Missoula and an additional $2,154 was not used, leaving a 1964 Fiscal Year expenditure of $49,846. Beetle control costs for subsequent years appear on Table 3.

BLM received an appropriation of $2,880,000 in 1966 Fiscal Year for a special "frail" lands program. Of this, Makotapi received $50,000 in addition to regular funds. This action provided a total 1260 emphasis to Makotapi which exceeded that conceived in the original plan by 79 percent in 1966 and 1967, and 46 percent in 1968. The assignment, to Makotapi, of funds substantially in excess of those planned for, coupled with the requirement that they continue to be spent beyond the planned 5-year Project life, is perhaps the primary cause of growing dissatisfaction with the Makotapi 1260 program. The effect of the above changes are apparent on Table 3.

The $26,000 difference between planned and actual 5-year cost in 1260 is due directly to the "frail" land appropriation modified by the upper limit of what could be done with the manpower resources available. Had there been more justifiable opportunity for watershed investment of a structural or land treatment nature, strict adherence to the original plan and the frail land appropriation would have resulted in a 5-year 1260 expenditure of $321,000 - $150,000 more than the 1963 plan and $124,000 more than is shown to have been spent.

Despite expenditure overruns greater than in 1260, Cadastral Survey and Forest Pest Control programs do not receive the same criticism for several reasons. First, the survey program did not go beyond apparent marginal productivity.

The 9700 program included about 50 percent of the work originally planned under 1250 for the first five years. The combined expenditure (1250 and 9700) of $203,000 is substantially greater than the $131,000 planned as 1250. We found nothing to suggest that the actual expenditures were anything other than an underestimate of the cost to complete the forest development job in South Dakota.

Recreation maintenance, road maintenance, range improvements, and wildlife were not considered when the Project was initiated. Costs shown do not include rent paid by GSA to Belle Fourche

property owners for office space. Nor does it include the cost of personnel transfers in and out of Belle Fourche, of which there have been many.

We consider the 5-year expenditures shown, and the $265,000 spent since the end of the 5-year period, to be conservative figures. Some of this increased expenditure can be considered the result of inflation. But mostly, it reflects the continued view, in both the Montana State Office and Miles City District, that needs in South Dakota justify the expenditure of a broad distribution of funding for multiple land uses.

Table 4 shows the distribution of funding in the approved Makotapi 5-year, multi-activity, Project plan, and the percentage destribution of actual expenditures. To the extent that costs can be accurately determined, it appears that overall program integrity for the Project life was very good. Such adherence to the plan has been accomplished despite the influence of new and terminated programs, changes in emphasis, and lack of specific directives for expenditure in any activity except watershed. However, the effect of goal completion, changes in priorities, and other factors become clearer if we look specifically at FY 1970 data. Construction and Cadastral Survey expenditure has already fallen sharply. Forestry costs will also fall within a few years unless additional forest resources are added to the program (northeast Wyoming). The higher

Table 4

PERCENTAGE DISTRIBUTION OF PLANNED AND ACTUAL COSTS AMONG ACTIVITIES

PROJECT FEATURE	% of 5-Year Total Planned Cost	% of Actual Expenditure		
		Thru FY 68 2/	Thru FY 70 3/	FY 70 Only 4/
Land Tenure Analysis & Recreation Planning	4	3	4	10
Range Inventory & Studies Range Use Supervision Wildlife Habitat Management Cooperative Research	4	5	8	19
Forest Inventory Forest Management Plans & Surveys Forest Product Sales & Trespass Forest Site & Stand Improvement Reforestation	27	28	29	29
Cadastral Survey	29	30	24	5
Soil & Moisture Surveys & Watershed Plans Brush Control, Seeding & Fencing Other Soil Stabilization Practices Reservoirs & Spring Developments Dikes, Detentions & Diversions Other Water Control Practices	23	22	25	35
Recreation Facility Survey, Design, Construction & Maintenance	4	4	4	1
Road Survey, Design, Construction & Maintenance Access Acquisition	9	8	6	0
	100	100	100	99

1/ Based on cost estimates in Table 1. Expenditure was $758,000.
2/ Based on cost estimates in Table 3. Expenditure was $939,000.
3/ Based on cost estimates in Table 3. Expenditure was $1,204,000.
4/ Based on cost estimates in Table 3. Expenditure was $146,000. The missing one percent was for 1270.

percentage figure for Soil and Moisture work reflects more a decrease of total South Dakota expenditures than an increase in 1260.

While that committee recommends that the Makotapi Project continue, the possibility exists that funds for further development may cease. If this should happen, the following annual cost is estimated for maintaining and protecting investments made as of this evaluation.

Reservoir Maintenance and Inspection (1260)	$3000/year
Recreation Site Maintenance, Cleanup and Fire Patrol (2220 - 1270)	7500/year
Road and Trail Maintenance (2230)	2000/year
Black Hills Beetle Control (9700) (Maintenance program)	15,000/year
Project Total	$27,500/year

Fences are rancher maintained under cooperative agreements.

IX. EXPERIENCES USEFUL FOR DEVELOPMENT OF SIMILAR PROGRAMS

The record shows that Makotapi resulted from Congressional initiative outside of institutional planning, programming, and budgeting processes. To say that we might have been better prepared, i.e., had better developed plans, is to say that we could have predicted with reasonable accuracy if, where, and when a Congressman would want some particular project initiated. Or it assumes that we will be so fully planned that we are prepared to make immediate program decisions and initiate a project, anywhere on BLM lands, within three months. (This is the approximate timing necessary to implement a program at the beginning of the fiscal year being considered by Congress.) Neither condition existed then, nor is likely to occur very soon.

What, then, can we learn from this Project? First, we can build a good program on very short notice and without formal detailed plans. It could not have been done, however, without competent employees with good knowledge of local BLM resource management needs and potential. In other words, the value of employees, under such circumstances, seems to vary directly with the lack of comprehensive plans. With few exceptions, early decisions and estimates have proven sound.

But reliance solely upon the availability of unrecorded knowledge is a chancy thing and argues for the development of plans. Any degree of completed planning would have helped to remove the risk of not having qualified people on hand at the right time. This is not to say we should make plans and wait for Congress to initiate a project that will make use of them. On the contrary, if we accept the project approach, we should be working on the means to program in this fashion. Not just at the field level in the form of packages which are then disembodied for presentation to the Department, OMB, and Congress, but program units, geographically oriented, which retain their identity and content all the way through programming, budgeting, and work planning.

The strongest criticism of special projects has been that funds have been "locked" to specific areas without regard for changing needs. This is the most distressing aspect of the Makotapi Project. For example, requests to move some 1260 funds to higher priority work as Project goals were reached reportedly met with refusal from Washington. While not yet as critical in South Dakota as in other Project areas, it soon will be. The committee believes that the matter can and must be solved in current projects and provided for in future ones. The process would involve a combination of dollar and manpower interchange within political subdivisions or appropriation activities. Congressional committees should be approached, when necessary, with solid, well supported alternatives which fully

recognize the committee's interest. There is no reason to believe that good management cannot be accomplished within political constraints.

Expenditures in Cadastral Survey and Construction have all but ceased in South Dakota, at least for the present. Forest Pest Control and reforestation expenditures dropped sharply as goals were reached and other forestry spending will have to cease when there is no more proper stand improvement or timber cutting work to be done. Must we endlessly put scarce watershed funds into low priority investments rather than make the necessary effort to invest wisely? Future projects should be made with the understanding that, as program goals are reached, revision will be promptly negotiated.

The Project has demonstrated that Congress will consider BLM programs in multi-activity format. It shows that multi-activity funding, in and of itself, is not necessarily forbidden territory. Table 4 in the section on Cost shows how effort was distributed among numerous activities in the approved Makotapi 5-year Project plan. In this respect, Makotapi demonstrated the smoothness with which different, but related, activities can be managed in solving a problem, i.e., the theoretical package approach to program

execution. This was particularly apparent with cadastral survey and occupancy trespass. Instead of only part of the needed input being funded, all was provided. There was no need to "steal" from programs in other areas to make a project program work. While this study did not explore the matter, it appears that more was accomplished with a given amount of funds and manpower in this manner than would be true if the investments were spread in a single subactivity over an entire district.

The committee recognized that there are both advantages and disadvantages associated with funding by activity on the one hand, and by geographical area on the other. BLM has a particular characteristic of its own, however, that makes the choice of program strategy critical. We have regulatory responsibilities which have not traditionally had Congressional support, although concern for the environment is currently working in our favor. Also, we have activities in which other agencies play a dominant role nationally. This tends to constrain appropriations in these areas. Together, the above categories make up much of BLM's program and, in short, leave us with little national popular or special interest support for additional funds.

Makotapi, Vale, and other "special projects" suggest to us that we may not be adequately responding to what may be our best program support opportunity. Instead of trying to compete with NPS for recreation funds, BSF&W for wildlife recognition, or organized livestock associations for range management funds, why not talk to Congress in the language they best understand -- political subdivisions, i.e., geographic areas.

To accomplish a multiple resource management objective within a political subdivision of a particular state would seemingly gain more effective support than a proposal, for example, to increase grazing administration across twelve western States. It should also appeal to the Department better than a proposal to develop recreation and wildlife habitat potential throughout the western States, in alleged competition with the principle recreation and wildlife agencies.

The geographic project approach also provides a better framework around which to construct economic and other analysis in support of proposals to OMB. All potential outputs, or benefits, from the project can be related to all of the inputs. This is not possible when the program proposal involves only one activity which cannot be separated from others in operation. To present all benefits from a one-activity program involves estimating "spin off" benefits and allocation of joint costs which only serve to confuse the

program presentation.

In the current budget climate, we should not expect to obtain significant program increases on the basis of the purple prose of traditional budget justifications. Nor can we depend entirely on analyses based on expectations. Past accomplishments and benefits should be evaluated. If the resultant evaluation is as favorable as we expect it to be, then we have something solid on which to base a request for additional program funding for similar efforts. But the evaluation and the ultimate justification must be high quality products to have a chance. Not only will hurried, superficial, and unconvincing presentations not produce significant additional funds in a given year, it will seriously damage chances for success of an improved proposal at a later date.

It is equally useless to propose large programs that do not directly and visibly benefit people or the resources upon which people depend, such as programs which are "pure" planning. In this respect, Makotapi was an action program that accomplished on-the-ground needs.

Something else has been learned from Makotapi. If we want to evaluate a project five or ten years after its beginning, we must conscientiously maintain records which will permit this. This means we should not change data collecting codes and storage

systems unless the ability to retrieve data in a homogenous or compatible form is preserved. It means also that the 3-year rule of record destruction must be waived with respect to critical data.

X. RECOMMENDATIONS FOR FUTURE SPECIAL PROJECT EVALUATIONS

We believe the examination of the Makotapi Project was useful. It was useful for the same reasons most program evaluations are useful. But there was another reason. As the title suggests, special projects are different, and Makotapi is different from most special projects. In South Dakota, we have an opportunity to see (and show) what BLM response can be to a sudden and substantial increase in funding of multiple activities within a given geographic area. It is a situation such as we might expect to face, should programs developed from our planning system be funded for several activities within a defined unit of land. Because of the very low funding level before the Project, we are (or should be) able to measure the cost and accomplishment here under laboratory type conditions.

In one sense "special projects", as we know them, are special only because they represent a significant increase in financing for a defined area and because they arise from Congressional initiative rather than from systematic planning, programming, and budgetary efforts.

In another sense, however, "special projects" are an opportunity to demonstrate what we can do under specific conditions. Makotapi provides such an opportunity with respect to multiple-activity

financing for BLM lands in South Dakota. Other projects may reveal worthwhile information under different sets of circumstances. In this vein, Little Beaver Project in North Dakota has been reviewed and a report will be forthcoming soon.

We would caution, however, against too broad a study. We don't believe, for example, that it is particularly useful to measure benefits, effectiveness, or cost as a routine matter, although it might be useful to make such an analysis specifically in support of proposals for new or increased programs. Neither do we believe that an extensive study is needed to provide an unsolicited report to Congress. Reporting to Congress on "special projects" is currently very limited and even that may be more than is necessary. Congress has shown little interest in benefit cost relationships and other such detail.

Perhaps the most frequent comment raised in any discussion of special projects has to do with the inability to adjust soil and watershed (1260) funds as goals are achieved. This subject has been treated earlier in this report as it applies to Makotapi. It will most likely be the primary factor behind studies of other special projects. Such studies will raise questions of how well goals have been met, and should objectives be redefined within the project area. Should funds and manpower be shifted to other activities within the political subdivision or to the same activity in another such subdivision? What are the alternatives

and the procedures necessary to achieve needed changes? We have had encouraging experience in dealing with a change in geographic boundaries (Beowawe). There is reason to believe that we can be equally successful in adjusting between activities in South Dakota in accordance with recommendations made in this report. If so, we will have made progress toward such adjustments in other projects.

Should evaluation be undertaken on other projects, the following suggestions may be helpful.

1. Form a study objective which is limited to known or suspected problems to which there is reason to believe an acceptable solution exists.

2. Begin to gather data well in advance of the need for it. Because of record "throw away" procedures, some may have to be reconstructed. Because of changes in financial record systems, DSC data may have to be updated to current coding structures for printout and analysis.

3. Schedule study at a time when weather and other conditions will permit productive field examination.

Should it be determined that certain future special project studies be broader than recommended above, a suggested guide is attached. The Makotapi evaluation was, in general, made from such an outline.

Richard D. [illegible]

Donald D. Riddle

Donald D. Waite

Attachment 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D. C. 20240

January 11, 1971

Memorandum

To: Chief, Branch of Program Analysis
Division of Operations

From: Special Project Evaluation Team

Subject: Progress Report -- Evaluation of Little Beaver and Makotapi Special Projects

The following work has been accomplished since the team was notified, during the week of November 30, to proceed with the evaluation. Also included is a copy of the plan and schedule of the effort.

Dec. 1, 1970 Washington Office portion of Evaluation Team met with Chiefs, Division of Operations and Branch of Program Analysis, to reach agreement on scope and objectives of the evaluation.

Dec. 2-4 Team met (Hillier by phone) to (1) define in more detail questions to be answered during evaluation, and (2) establish schedule for field portion of study.

Washington Office team members:

1. Interviewed former (1965-1969) Miles City District Manager, Lee Laitala, regarding both projects.

2. Assembled and reviewed data available in the Washington Office Divisions of Operations, Forestry, and Watershed.

Dec. 8-10 Full Team met in Montana State Office and:

1. Cleared evaluation content and schedule with the State Director.

2. Interviewed staff members on their experience and opinions regarding Makotapi and Little Beaver Projects as follows:

Chief, Div. RPM - Jim Linne
Chief, Div. Engineering - Pete Gregory
Range Specialist - Rex Cleary
Recreation Specialist - Carl Lind
Chief, Planning Coordination Staff - Ernest Kemmis

NOTE: The S.O. Forester and Chief, Branch of Lands, were absent. The watershed specialist is a team member.

3. Gathered written data from files and records.

Dec. 10-11 Met in Miles City District Office and:

1. Explained objectives to District Manager and Area Office Manager and agreed upon remaining field schedule;

2. Interviewed staff with respect to Little Beaver Project as follows:

District Manager - Rex Colton
Assistant District Manager - John Fields
Administrative Officer - George Gray
Prairie Resource Area Manager - Don Nelson
Range Conservationist - Dennis Jones

NOTE: North Dakota Resource Area Manager's duties have been absorbed by Prairie Resource Area Manager.

3. Interviewed staff regarding the Makotapi Project as follows:

District Manager
Assistant District Manager
Administrative Officer
Prairie Resource Area Manager
Chief, Division of Operations - Ray Brubaker

NOTE: Additional interviews regarding this project were made at Belle Fourche.

4. Gathered written data from files and records.

Dec. 14 Met in Belle Fourche Area Office and interviewed staff regarding Makotapi Project as follows:

Area Officer Manager - Claude Roswurm
Forester - Jim Clark
Range Conservationist - Hy Wilson

Dec. 15 Examined southern portions of project in company with Area Manager, Roswurm, Forester Clark, and Assistant District Manager, Fields.

1. Fort Meade - grazing areas
   - recreation sites
   - logging methods
   - South Dakota Fish & Game proposal
   - proposed BLM building use
   - road construction, existing and proposed
   - water impoundment.

2. Deadwood Exemption Area - bark beetle eradication
   - timber sales and thinning
   - cyclone damage rehabilitation
   - Deadwood burn rehabilitation.

Dec. 16 Examined northern portions of project in company with Area Manager Roswurm, Range Conservationist Wilson, and Assistant District Manager Fields.

1. Crago Battle Creek A.M.P. - pasture locations & conditions
   - water impoundment, design, results, and problems
   - tree planting.

2. Moreau Grazing Association Allotment

   - reservoir design and problems
   - Alkali Creek erosion and deposition with related vegetative changes
   - Fourmile Creek erosion and deposition.

Dec. 17 Concluded interviews with Area Office personnel.

Gathered data from files and records.

NOTE: John Fields, Assistant District Manager, Miles City, accompanied the team from noon, December 14, through December 17.

Attachment

Team Members

David A. Waite

SUGGESTED GUIDE FOR EVALUATION OF SPECIAL PROJECTS

1. Washington Office Data Collection Prior to Field Trip:

   A. Examine appropriation records:

      Senate House Hearings
      Senate House Reports
      Conference Reports
      Appropriation Acts

   B. Examine "Special Project" files:

      Appropriate Resource Division
      Operations Division
      Budget Division

   C. Interview Washington Office staff who should be able to contribute needed information about the project.

2. Request Needed Reports from ADP-Denver:

   A. Man-months and costs funded.

   B. Accomplishments and JDR.

3. State Office Data Collection:

   A. Examine "Special Project" files.

   B. Interview State Office staff who should be able to contribute information:

      State Director
      Chief, Division of Resources
      Watershed staff
      Range staff
      Chief, Division of Management Services
      Current Year Program staff
      Program Coordination staff

4. District Office Data Collection:

   A. Examine "Special Project" files.

   B. Interview District Office staff who should be able to contribute information:

      District Manager
      Chief, Division of Operations
      Chief, Division of Administration
      Chief, Division of Resource Management
      Area Manager(s)

   C. Field Examination:

      Nature of work
      Accomplishments
      Work still to be done
      Maintenance situation
      Problems

5. Analyze Data and Evaluate Project:

   A. Evaluate project features:

      Size
      Location
      Facilities
      Staffing
      Organization

   B. Evaluate planning and project objectives.

   C. Determine program integrity (funds and manpower).

   D. Compare accomplishment (input and output) to objectives.

   E. Compare benefits, effectiveness or accomplishment (output) to cost (input).

   F. Measure positive and negative effects of project on other programs in same or other districts.

G. Evaluate remaining capital investment and maintenance work for:

  (1) Amount

  (2) Priorities relative to rest of district, other districts in the State, and other States.

6. Write Report:

A. Summarize analysis and evaluation.

B. Recommend for the future of this project.

C. Identify lessons learned which may be useful for supporting new or expanded programs (or projects) in other areas.

D. Recommend for future "Special Project" evaluations.

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